

47. *On a New Genus of Compound Ascidians.*

(*Syndiazona* nov. gen.)

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The new species of Compound Ascidians described below is certainly by far the most voluminous of its kind, a single colony weighing in many cases more than one kilogram. It is rather common on our coasts and forms a conspicuous object among the collection of marine Invertebrates, but, like the majority of our littoral fauna, it has not been made known to science yet.

Syndiazona grandis nov. gen., nov. sp.

The Colony is massive and consists of a globular or ovate head borne on a very thick but short peduncle. The ascidiozooids are confined to the former, the peduncle containing only the fine vascular appendages projecting from the posterior extremities of the ascidiozooids. At the lower end the peduncle is somewhat enlarged and is provided with a number of root-like processes for attachment. The surface is smooth and even on the peduncle, but uneven on the head, where the branchial and atrial apertures form shallow pits, due to the contraction of the siphonal muscles. The colour of the colony in preserved specimens is a pale yellowish grey, becoming somewhat darker towards the base; during life the head is a little more greenish.

The dimensions of a fairly large colony in my collection are as follows:—height 15 cm., diameter of head 12 cm., diameter of peduncle 9 cm., length of peduncle 6 cm.

The Ascidiozooids are exceptionally large for a Compound Ascidian, measuring about 32 mm in length and 6 mm across at the widest part, which is near the anterior end. They are placed nearly at right angles to the surface, and occur at fairly equal distances all through the test; near the periphery of the colony, however, they assume more oblique positions with the posterior part directed downwards. The body is

divided into two distinct regions of about equal length. The thorax, containing the branchial sac and the distal portion of the rectum, is rather broad, while the abdomen is much narrower and is connected with the thorax by a very narrow pedicle traversed by the oesophagus, the intestine, and the genital ducts. The branchial and atrial apertures are both at the anterior end, the atrial projecting a little beyond the branchial; they are each provided with six well marked lobes.

The Test is soft and gelatinous in the head, but firm and cartilaginous in the peduncle. The soft part of the test, however, does not extend to the centre of the head, but is confined to the superficial layer whose thickness is equal to the length of the thoracic region of the ascidiozooids, so that there is a distinct line in the test marking the point where the soft gelatinous mass containing the branchial part of the ascidiozooids joins the cartilaginous test substance in which the abdomen and the fine vascular appendages of the ascidiozooids are imbedded. The peduncle consists almost entirely of the test substance.

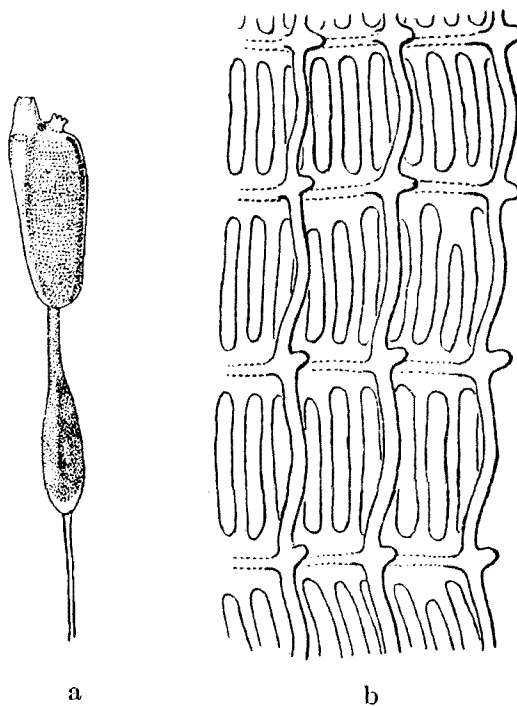
The Mantle is rather strong on the thorax, where it is provided with numerous transverse muscle bands; on the abdomen it is very thin, with little or no musculature.

The Tentacles are simple and filiform, and are all of much the same size. They are about twenty in number, and spring from a circular band of muscular fibres which form the posterior end of the branchial sphincter.

The Dorsal Tubercle is ovate in outline and lies in a shallow peritubercular area. The neural gland and the ganglion form a rounded opaque mass situated immediately posteriorly to the dorsal tubercle.

The Dorsal Lamina is represented by a series of long, pointed, tentacular languets, which form a conspicuous fringe along the dorsal edge of the branchial sac.

The Branchial Sac is large, and has an enormous number of stigmata for a Compound Ascidian. It has numerous (some-



Syndiazona grandis

- a. An Ascidiozooid Natural size.
b. Part of branchial sac. 60x.

times 100) transverse vessels which are of nearly uniform size and bear at regular intervals short connecting ducts that support the slender internal longitudinal bars. The latter are about forty to fifty in number on each side, and bear knob-like papillae at their intersections with the transverse vessels. No intermediate papillae are present. The meshes are regular, elongated antero-posteriorly, and contain each about three long and regular stigmata with parallel sides and rounded ends.

The Endostyle is conspicuous; its course is nearly straight.

The Alimentary Canal is large, and is of an opaque yellowish colour. The oesophagus commences at the posterior end of the dorsal edge of the branchial sac and runs directly backwards. It is a long and narrow tube with moderately thick walls. The stomach is elliptical in shape with its long axis placed antero-posteriorly. The walls, which are only moderately thick, are folded longitudinally. The intestine, after leaving the posterior end of the stomach, from which it is separated by a marked constriction, runs for a short distance backwards, and then turns round dorsally and anteriorly to continue its course forwards, as the rectum, lying at first alongside the stomach and oesophagus, and then running up the dorsal edge of the branchial sac to the anus, which is placed far forwards in the peribranchial cavity close to the atrial aperture. The intestine where it leaves the stomach is rather thick-walled and narrow, not much wider than the oesophagus, but while curving round at the posterior end it becomes rapidly wider and its wall is greatly reduced in thickness. The rectum is nearly as wide as the stomach, and its wall is so thin as to be almost transparent. The margin of the anus is entire.

The Reproductive Organs are placed alongside the intestinal loop in the abdomen. Both the oviduct and Vas deferens run parallel to the rectum and open into the peribranchial cavity separately at some distance below the anus.

This species is particularly interesting on account of the resemblances it shows to some of the *Ascidiae Simplices*. It is most closely allied to the genus *Diazona*, from which it differs chiefly in having the ascidiozooids completely imbedded in the common test and in the presence of papillae on the internal longitudinal bars. In the latter character it agrees with the genus *Ciona* among the Simple Ascidians. The new species combines, thus, to a certain degree the characters of these two genera, and necessitated the formation of a new genus for its reception.

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